GOOD PRACTICE GUIDE 321

Energy efficiency in PPP/PFI contracts for further and higher education

- Reduce whole life costs and optimise value for money
- Appropriate share of risk between client and contractor
- Development of performance-based output specifications
- Payment mechanisms to encourage contractors to deliver energy efficiency

GOOD PRACTICE GUIDE 321

ENERGY EFFICIENCY

BEST PRACTICE PROGRAMME

CONTENTS

1 INTRODUCTION

Public Private Partnership (PPP) and Private Finance Initiative (PFI) projects are now well established within the further and higher education sector. These allow the private sector to combine their resources and expertise with those of the public sector, to deliver enhanced service provision and value for money.

The PPP/PFI approach has been used to deliver a diverse range of services and assets ranging from new IT systems through to complete and fully serviced buildings. PPP/PFI contracts can last upwards of 20 years and making the right decisions at day one can therefore have a significant long-term benefit.

Almost all PPP/PFI contracts have energy implications. For example, new buildings will require heating and lighting, while IT systems will consume electricity and may require cooling. Because PPP/PFI contracts have such long terms, the value of the energy consumed over their life can be significant, although this may not always be recognised at the time that the contract is let.

There is an opportunity to minimise this energy burden by taking advantage of the private sector's specialist expertise in:

- design and construction
- operation and maintenance
- energy management.

Annually, UK universities and FE colleges spend around £200 million on their electricity and heating fuel requirements and it has been estimated that a 23% saving could be made across the sector, which would liberate money for more beneficial purposes.

Energy use also has a significant adverse effect on the environment, principally due to the emission of the greenhouse gas, carbon dioxide. Staff, students and sponsors are becoming increasingly environmentally conscious and may favour those universities and colleges that can demonstrate their 'green' credentials by improvements in their energy efficiency.

The purpose of this Guide is to alert universities and colleges to the opportunities for incorporating energy efficiency into PPP/PFI contracts and to propose methodologies for achieving this. The issues surrounding the appropriate allocation of energy consumption risks are discussed, and examples are given of how others have achieved value for money.

2 ENERGY EFFICIENCY AND PPP/PFI

THE SIGNIFICANCE OF ENERGY COSTS

Major PPP/PFI contracts, such as the provision of a new building, can last for 20 years or more. The value of the energy used by the building over this period must be fully considered when establishing the contract.

Taking typical figures for a 5,000 m^2 academic building as an example:

- Construction cost (£1,000/m^2) – £5,000,000.
- Energy cost over 20 years – £925,000 (£5.60/m^2/year, with fuel prices inflating at 5% per annum).

In this example, energy costs come to almost 20% of the building's construction cost. More significantly:

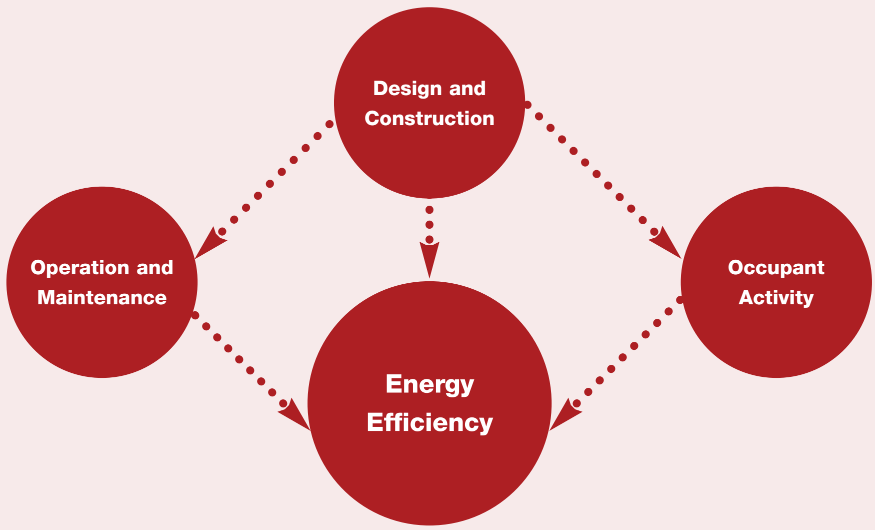
- These costs are *controllable*, offering the potential for savings (typically 20% or more).
- A marginal increase in capital costs can have a significant effect in reducing lifetime operating costs.
- Whilst the contract may expire after 20 years, the university or college is likely to continue occupying the building for much longer and so 'whole life' energy costs will be even greater.

Unlike conventional procurement, the PPP/PFI process forces the contractor to consider operating costs in detail at the outset of a project. The decisions that influence it are made in the relatively short time that it takes to negotiate and establish the contract. It is vital, therefore, that all relevant factors are recognised and addressed 'up front', to allow the correct decisions to be made for the future.

The issues that affect energy use

There are three factors that will determine the amount of energy used by a building over its life.

- ***Design and Construction***
  Issues such as the layout of the building, its insulation standards, the efficiency of its services plant and the extent of automatic controls.



It is important to recognise that different skills are required to manage each of these issues and this will impact on the way in which each is dealt with within a PPP/PFI contract.

Figure 1: Factors affecting energy efficiency

ENERGY EFFICIENCY AND PPP/PFI

- ***Operation and Maintenance***
  Issues such as structural repairs, replacement cycles for consumable components, boiler servicing and the regular calibration/adjustment of control systems.
- ***Occupant Activity***
  Issues such as how much equipment is installed (for example, computers), and how it is used. Staff working practices can also influence the amount of energy used for lighting and other building services.

Whilst these factors will operate independently, decisions taken at the design stage can also facilitate effective operation and maintenance (for example by the selection of 'user-friendly' control systems), and reduce the impact of occupant activity (for example by the use of automatic lighting controls).

The link between energy efficiency and value for money (VFM)

VFM must be assessed over the whole life of the PPP/PFI contract, taking into account not only initial purchase costs, but also on-going running costs such as energy and maintenance. This can easily be done using whole life financial assessment methods such as discounted cash flow.

Investment in energy efficiency both at the outset of the contract (for example, by installing more efficient plant), and over its life (for example, by adopting more rigorous maintenance regimes), will often deliver improvements in VFM. This is because over the life of the contract the value of the fuel consumed by building services plant (for example, heating boilers), will be far greater than the initial purchase cost of the equipment itself. A small additional investment in energy efficiency can therefore yield far more substantial running cost savings.

Figure 2 illustrates how VFM can be improved by investing in energy efficiency. It should be noted that simply choosing the cheapest piece of equipment (or undertaking only minimum plant maintenance) is unlikely to deliver best VFM.

Basic levels of investment in energy efficiency will yield excellent returns.

Further investment in energy efficiency will continue to improve VFM, but at a steadily decreasing rate. This will lead to the optimum investment level where VFM is at its maximum.

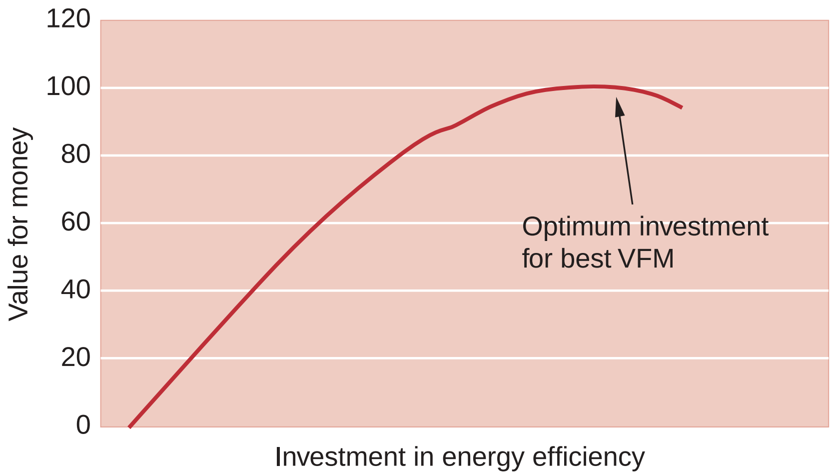
Continuing to invest in energy efficiency beyond this point will yield only limited returns and will hence harm VFM.

Utilising the contractor's skills

Managing the issues affecting energy consumption and costs will require a wide range of skills.

Many of these may already exist within the university or college itself, while additional skills may be provided by the contractor.

Figure 2 Improved 'value for money' (VFM) through investment in energy efficiency



ENERGY EFFICIENCY AND PPP/PFI

Successful PPP/PFI contracts recognise the skills and resources available, from both the public and private sectors, and combine them to deliver enhanced service provision and value for money. They should not be viewed as an opportunity for the wholesale transfer of all responsibilities to the contractor. For example, the contractor may be best placed to manage operation and maintenance (particularly of specialist plant such as CHP), but the university may be best placed to manage the energy use associated with occupant activity.

Fortunately, most PFI contracts will be established under the 'negotiated procedures', as defined by the EU procurement regime. This encourages open discussion between the procurer and the contractor in order to develop the most beneficial arrangements. It will be important to allow for innovation that may be offered by the contractor in order to improve the competitiveness of his proposals. For further information see EEBPp Good Practice Guide 289.

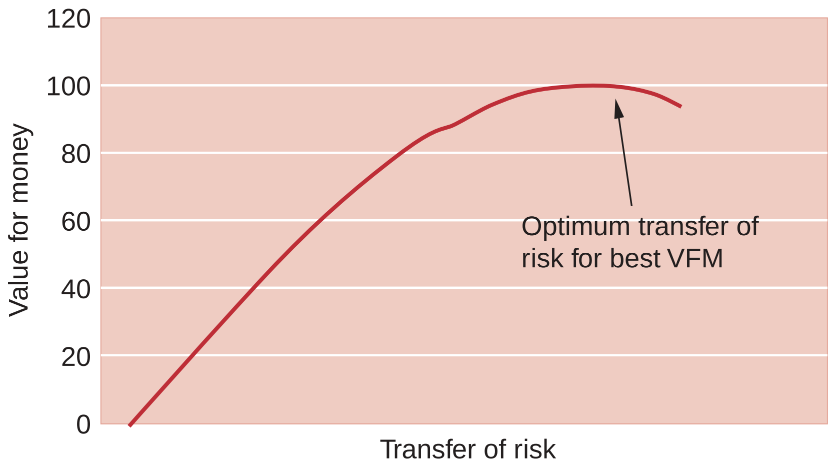


Figure 3 Improved 'value for money' through investment in energy efficiency

If full advantage is to be taken of the contractor's ability to influence energy use it follows that the contractor should meet the energy cost of the service he provides. In its simplest form, the agreement may require the contractor to pay for fuel purchased (gas, oil, etc) and sell useful energy to the university/college. It will, however, probably be beneficial also to include incentives for the contractor to control the demand for useful energy around the university/college.

One of the issues that will need to be addressed will be the payment mechanism. This payment mechanism will need to cover each aspect of the service provided, and remunerate the contractor in proportion to the amount and standard of service delivered, ie services that are less than satisfactory will have proportionate deductions made and those that are not delivered will not be paid for.

The following section gives step-by-step guidance on dealing with these issues and illustrates the practicalities by reference to two successful PFI contracts:

- a new hall of residence for the Royal Northern College of Music
- Laganside Courts in Belfast.

3 STEP-BY-STEP GUIDANCE

■ STEP 1 ■ STEP 2 ■ STEP 3 ■ STEP 4

DECIDE WHO'S GOING TO MANAGE EACH ASPECT OF ENERGY USE

The responsibility for managing each of the risks associated with energy consumption should be placed with the party that is best able to manage it. This will give the combined benefit of best VFM and minimum energy use (see box).

Normally, the contractor should be given responsibility for managing the energy consumption risks associated with, the design and construction and, the operation and maintenance.

The allocation of responsibility for the energy consumption risks associated with occupant activity are, however, less clear cut.

Whilst the contractor should be able to bring specialist skills and resources to bear to help with:

- staff awareness and training
- the purchasing of energy-efficient goods (such as computers and laboratory equipment)
- ongoing monitoring, targeting and reporting of energy performance,

the contractor may lack the authority to influence decisions affecting building use. His ability to manage the risk of excessive energy consumption by the occupants may therefore be limited.

To deliver VFM and/or required energy performance therefore, special arrangements must be made either to:

a) share the responsibility between the contractor and the university/college, for managing energy use related to occupant activity (techniques for achieving this are presented in Step 4, page 12), *or*

b) incorporate design features (such as automatic lighting controls), which minimise the impact of occupant activity to the point where it becomes viable for the contractor to assume full responsibility for the resulting energy use.

Value for Money and Risk Transfer

It is a fundamental requirement for any PFI project that it must offer better value for money (VFM), than traditional procurement methods.

PPP/PFI contracts can deliver VFM in a number of ways, but most of these are underpinned by the concept of 'risk transfer'.

The delivery of any service or asset will be subject to a number of risks, which will influence the cost of provision. These risks need to be managed to reduce/minimise any potential cost implications. PPP/PFI projects seek to deliver better VFM by identifying all risks at the outset and allocating them to the party best able to manage them.

There will usually be some risks over which the contractor will have little or no control. If these risks are forcefully transferred to the contractor they will charge a premium and VFM will be prejudiced. If such risks are identified they should be retained, if possible, by the university or college. The wholesale transfer of all risk to the contractor is unlikely to deliver best VFM.

The need for appropriate risk transfer is of critical importance when establishing responsibility for energy efficiency within a PPP/PFI contract, and the intention is to optimise the share of risk. This is illustrated in Figure 3 (page 6).

Within the context of energy efficiency, the general risk is that consumption and/or costs may be higher than anticipated. This could lead to a financial overspend or the building failing to meet its energy performance target.

This risk applies to all aspects of energy use and may arise at any stage of the contract. For example:

Parameter

Risks Leading to Excessive Energy Consumption or Costs

Design and Construction

- Inefficient plant selected
- Plant oversized for duty
- Inadequate controls provided

Operation and Maintenance

- Inadequate maintenance carried out
- Control settings not sufficiently fine tuned
- Fuel price changes

Occupant Activity

- Wasteful working practices
- Additional equipment (computers, etc) installed
- Extended working hours

STEP-BY-STEP GUIDANCE

STEP 1 ■ **STEP 2** ■ STEP 3 ■ STEP 4

CONSTRUCT THE OUTPUT SPECIFICATION

The output specification defines the service standards required of the contractor.

For PPP/PFI contracts which are driven purely by VFM, the output specification (for the provision, say, of fully serviced academic space), is likely to define requirements for:

- minimum winter room temperatures
- maximum summer room temperatures
- minimum illumination levels
- minimum ventilation rates
- working hours
- availability (reliability).

Note: no stipulation is made relating to the level of energy efficiency to be achieved. This leaves the contractor free to deliver the required service standard by whatever means offers the best whole life VFM.

For those PPP/PFI contracts that are driven by the need to meet energy use targets the output specification should be expanded to define these additional requirements. There are a variety of ways of achieving this, principally:

Energy Performance Targets

Indicators such as kWh/m^2 of floor area per year can be specified, both for fossil fuel (gas, oil or coal), and electricity.

Energy performance benchmarks are available from the Action Energy Helpline. The benchmarks current at the time of production (2002) are:

Annual Energy Use (kWh/m^2)	Fossil Fuels	Electricity
Higher Education *Residential*		
– *Typical*	230	88
– *Good Practice*	190	76
Higher Education *Academic*		
– *Typical*	180	76
– *Good Practice*	150	66
Further Education		
– *Typical*	171	45
– *Good Practice*	114	31

These benchmark figures are updated periodically and could potentially form the basis of required continuous improvement throughout the contract term

Specific Technology Requirements

Many universities and colleges have already determined that specific technologies, such as high-frequency fluorescent lighting and condensing boilers, best meet their needs. As a consequence, many have adopted these technologies as 'standards' for their own in-house refurbishment projects. Such technologies can be incorporated into the output specification as a requirement.

The selection and specification of energy-efficient plant can be made easier by referring to the list of products that qualify for enhanced capital allowances. The up-to-date list can be found on the website www.eca.gov.uk

Efficiency Standards

Minimum standards of efficiency can be specified for key plant and equipment (as an alternative to specifying particular technologies). For example:
Boiler plant % thermal efficiency required
Lighting efficacy (lumens/Watt or Watts/100 lux delivered).

From April 2002, Part L2 of the Building Regulations set minimum energy efficiency standards (expressed in terms of carbon emissions), for non-domestic buildings in England and Wales. This includes consideration of the efficiency of building services such as heating plant and lighting, and should form the minimum standard for all new and refurbishment projects.

Energy Waste Standards

It is common for PPP/PFI output specifications to define the minimum standards of service required. This approach can be extended to include maximum conditions beyond which unacceptable waste is deemed to be occurring. For example:

Heating specify a maximum permissible room temperature to be delivered by the heating system during occupied periods.

Ventilation maximum air change rate relative to the number of occupants.

Air-conditioning specify a minimum permissible room temperature to be delivered by the cooling system during occupied periods.

Lighting specify the maximum amount of lighting that can be left on out-of-hours or in vacant rooms.

STEP-BY-STEP GUIDANCE

Specifying Energy Performance Requirements – Laganside Courts, Belfast

Modern court buildings, like many in the further and higher education sector, are highly serviced in order to deal with their large occupation densities and technical features such as video conferencing.

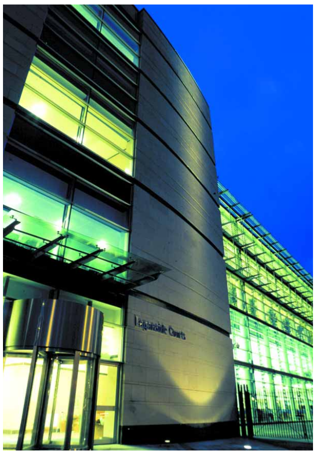
The Court Service has been addressing the energy efficiency of its buildings for several years and hence is well aware of the key design features required to deliver lowest whole life costs. These features are encapsulated in a written Court Service 'design standard', and adherence to this was a mandatory requirement of the output specification for the PFI project.

Departmental policy also required the building to achieve a 'very good' rating in an independent BREEAM assessment*. Provided these standards were met (or exceeded), the contractor had the freedom and responsibility to design the building and its services.

Subsequently, the contractor proposed the use of additional energy efficiency features such as supplementary automatic lighting controls, which were not included in the 'design standard'. It was possible to demonstrate that the extra costs involved delivered enhanced value for money and the proposals were incorporated.

This combination of 'prescription' and 'negotiation' has resulted in a building that incorporates many advanced energy efficiency features.

** BREEAM - BRE's Environmental Assessment Method (www.bre.co.uk)*



Laganside Courts, Belfast

STEP-BY-STEP GUIDANCE

SELECT A PAYMENT MECHANISM

Selecting an appropriate payment mechanism is of fundamental importance to any PPP/PFI contract. This is because payment (or the prospect of non-payment) is the principal incentive for the contractor to deliver the required service.

It is also the only way that risk can be meaningfully transferred.

With specific regard to energy, a payment mechanism is required that rewards the contractor for greater efficiency (and hence provides an incentive for him to invest time and money in achieving this). Mechanisms where the university or college agree to pay the energy cost as a direct 'pass-through' charge should be avoided, as these remove all incentives from the contractor.

A simple payment mechanism is the 'all inclusive' arrangement. Here, the contractor pays for all energy costs and absorbs these within the fixed monthly charge that he levies for the delivery of the contracted service (This monthly charge is agreed at the outset of the contract and, other than by mutual consent, can be adjusted only to reflect inflation or fuel price increases). Commercial considerations therefore encourage the contractor to make the optimum investment in energy efficiency in order to minimise whole life costs and hence provide good VFM.

A potential limitation with 'all inclusive' payment mechanisms is that they transfer all energy consumption risk associated with occupant activity to the contractor. As seen in Step 1, the contractor may not be best placed to manage this risk alone and so, if forced to do so, may charge a 'premium', which prejudices VFM.

One way round this is for the contractor to invest in design features (mainly automatic controls), which take much of the building's energy use out of the hands of the occupants, thereby reducing the risk of overspend to an acceptable level. This is illustrated in the case history on page 11.

Alternatively, a payment mechanism can be adopted which shares the risk between the contractor and the university/college.

Two mechanisms that facilitate risk sharing are:

Payments based on separately metered supplies

Energy that is principally under the control of the building's occupants is separately sub-metered and passed through at cost to the university or college throughout the contract. Typically, this would be the electricity associated with general power sockets and room lighting. The university or college therefore retains the risk associated with the level of this energy use.

In contrast, the contractor predominantly controls the electricity and heating fuels associated with the centralised building services. So, these costs can reasonably be incorporated within the contractor's 'all inclusive' charge. The contractor therefore carries the risk associated with this consumption.

The costs associated with providing the necessary sub-metering should not be excessive provided that the appropriate circuit arrangements are incorporated at the design stage (as is already common practice within the commercial property sector, where landlords' and tenants' supplies are often separately metered).

Using a 'settling-in' period

For the first one or two years of occupation, the energy costs are simply passed through to the university or college. This allows a realistic energy performance 'benchmark' to be demonstrated, which can then be used as the basis for the contractor's 'all inclusive' charges for the remainder of the contract. Under this arrangement the procurer bears the risk associated with the magnitude of the 'benchmark' energy figure, while the contractor carries the risk associated with sustaining this performance into the future.

Close involvement of the client during the settling in period is essential because the contractor has no incentive to save energy over that period, and it may even be in his interest to waste energy so that artificial targets are set that are not difficult to meet or exceed.

STEP-BY-STEP GUIDANCE

Similarly, it may be necessary for the university/college to prescribe the type of plant to be used (eg high-frequency fluorescent lighting, condensing boilers, etc), as this mechanism provides no incentive for the contractor to invest in energy-efficient equipment.

For PPP/PFI contracts that are driven by the need to meet energy use targets, payments should be linked to these.

In its simplest form, the contractor pays the energy bills but is reimbursed by the university or college at a fixed amount each month equivalent to the target energy use. The contractor therefore makes a profit or loss depending on whether actual consumption is below or above target. This provides a strong incentive for him to invest in energy-efficiency.

These arrangements can be supplemented by additional bonuses or penalty charges related to other efficiency and/or waste standards (such as those suggested in Step 2, page 8). To be workable, though, performance against these standards will need to be measurable, which may prove time consuming and a potential source of future contention. The value of this approach should therefore be carefully assessed before committing to it.

Using an 'All Inclusive' Payment Mechanism – The Royal Northern College of Music

The Royal Northern College of Music opted for a 30-year 'all inclusive' contract, with the contractor responsible for the design, building financing, and operation of the building. The contractor's remuneration is via a fixed weekly rental for each room, paid directly by the college, which covers all costs, including energy.

This has transferred all design risk to the contractor and allowed him to adopt the lowest 'whole life' solutions having regard not only to installation costs, but also running costs.

The contractor responsible for the Royal Northern School of Music contract opted to limit the energy performance risk associated with occupant activity by using a sophisticated automatic heating control strategy. This takes two forms:

- Centralised time control, which limits heat input overnight.
- Room temperature controls giving a fixed period of heating at the push of a button by the occupant. If the room is unoccupied it remains at a set-back temperature level.

This control strategy allows the contractor to 'manage' the risk associated with much of the occupants' energy use, and is predicted to offer lower overall running costs.

The required operating times and temperatures were specified by the college within their output specification.

Student accommodation at the Royal Northern College of Music

STEP-BY-STEP GUIDANCE

STEP 1 STEP 2 STEP 3 **STEP 4**

ALLOW FOR LONGER-TERM ISSUES

The relatively long duration of most PPP/PFI contracts means that they must be constructed with the flexibility to take account of future technical and commercial developments. Two principal issues – indexation and new technologies – need to be addressed.

Indexation

It is both unreasonable and uneconomic to expect a contractor to commit himself to a totally fixed price for delivering a service for 20 years or more. There will be factors which will have an influence on the contractor's costs. Some form of indexation formula will be required to allow for factors that are genuinely outside of the contractor's control. The external factors affecting energy costs include:

Fuel Prices

Two approaches are potentially available, namely the use of published fuel price indices or adjustment based on the actual price paid by the contractor. Suitable fuel price indices are published by the Department of Trade and Industry and are available in their Quarterly Energy Prices bulletin. Where indexation is based on the actual price paid by the contractor then care should be taken to ensure that this remains competitive. One means of doing this is for the university or college to obtain their own 'check prices' each year, with indexation being based on this price if it is better than that obtained by the contractor.

Building operating hours

Its operating hours will clearly influence the energy consumed by a building, and adjustments must be made if these change significantly over the life of the contract. The methodology to be used depends upon whether the energy is being used for heating or not.

Non-heating fuels can be dealt with simply by making a pro-rata adjustment based on the number of hours worked. A more sophisticated treatment is necessary when considering heating fuels. Various formulae are available to calculate heating demands with varying occupancy patterns, and detailed guidance is given within CIBSE Guide A 'Environmental Design', section 5.

Weather

When the weather is severe a building will use more energy. A parameter called 'degree-days' is used to determine this weather effect. In general, heating energy use is proportional to the number of degree-days in a given period. Non-heating energy use is generally independent of degree-days. 'Cooling degree days' are also available for buildings that are air-conditioned.

Twenty-year average degree-day figures are quoted which could form the basis of contractual energy charges. Actual degree-days are published monthly and can be used to make proportionate adjustments to monthly charges. In practice, however, the average number of degree-days over a 20-year period is reasonably predictable and it is therefore reasonable to expect PFI contractors to take a risk on weather patterns.

New Technologies

Over the course of a PPP/PFI contract it is likely that new technologies will emerge that will offer significant advantages over those already installed. Some flexibility must be built into the contract to allow these new technologies to be incorporated if appropriate. For example, the contract could require the contractor to invest in new energy efficient technology whenever the payback due to energy savings is within a predetermined limit.

Alternatively, provision could be made for either party (ie the contractor or the university/college), to invest in these measures at their own discretion, with the benefits passing to the party that has made the investment.

It is important that the contract requires the establishment of operating groups at which both the contractor and the client are represented. The purpose of these groups is to report on performance, to agree any changes in operating procedures, or to apply any new technologies that have emerged during the operation of the contract.

STEP-BY-STEP GUIDANCE

Sharing risk by using a 'settling in' period – Laganside Courts, Belfast

As seen earlier in this Guide, investment in energy-efficient plant was achieved in Laganside Courts by a combination of 'prescription' and 'negotiation'.

The Northern Ireland Court Service occupied the Court Building in December 2001, and the contractor retains responsibility for all aspects of its operation and maintenance.

Control is a key issue as, in common with many academic buildings, bookings for individual courtrooms (and their associated chambers, etc), are variable and subject to change at short notice. Energy-efficient operation therefore demands a flexible, zoned control strategy, with easy access for day-to-day adjustments. This has been achieved by the installation of a building energy management system (BEMS).

Effective management and use of the BEMS will ensure maximum savings. The payment mechanism encourages the contractor to do this.

During the first year of operation, energy costs are to be passed through to the Court Service, while a 'benchmark' performance is established for the building. Thereafter, this will form the basis of the contractor's charge (with indexation), and there will then be a strong economic incentive for them to drive down future energy consumption. At this time, the energy performance risk associated with the operation and maintenance of the building will have been effectively transferred.

Laganside Courts, Belfast

STEP-BY-STEP GUIDANCE – A SUMMARY

STEP 1	REQUIREMENT
Decide who's going to manage each energy factor	
Design and construction	Contractor
Operating and maintenance	Contractor
Occupant activity	Shared (or Contractor, if special design provisions)
STEP 2	
Construct your output specification	
To include	Minimum service requirements, plus Energy performance standards
STEP 3	
Select a payment mechanism	
Consider	All inclusive All inclusive with risk share on Occupant Activity Payment linked to energy performance
STEP 4	
Allow for longer-term issues	
Including	Indexation New technologies

5 FURTHER READING

Good Practice Guide 289: Getting Signed Up – Energy Services in the Public Sector
Provides general guidance on the processes involved in establishing an Energy Services Contract within the public sector.

Copies are available free of charge via the Action Energy Helpline: Freephone 0800 585794 or the website www.actionenergy.org.uk

Green Public Private Partnerships – A Guidance Note on How to Include Environmental Consideration within PPPs
Considers broader environmental issues, as well as energy efficiency.

Copies are available via the Internet at **http://www.agc.gov.uk**

HEFCE PFI Pathfinder Case Studies and Guidance
Provides detailed case studies on selected PFI projects within the higher education sector.

Available on the Internet at **www.hefce.ac.uk**

DFES PPP/PFI Case Studies and Guidance
Provides information on selected PPP/PFI projects within the further education sector.

Available on the Internet at **www.dfes.gov.uk/ppppfi**

Energy Performance Benchmarks
Up-to-date figures for the higher and further education sector are available free of charge.

Contact the Action Energy Helpline: Freephone 0800 585794 or the website **www.actionenergy.org.uk**

CIBSE Guide A 'Environmental Design'
Provides a methodology for adjusting heating energy use to take account of changes in operating hours and other factors.

Available from the Chartered Institution of Building Services Engineers (CIBSE).
Telephone 0208 675 5211 or visit **www.cibse.org**

Degree Days
More information on the use of degree days (and regularly updated data), is available of free of charge.

Visit the Action Energy website:
www.actionenergy.org.uk

Fuel Prices
Current fuel price indices are available from the Department of Trade and Industry's 'Quarterly Energy Prices' bulletin.

Subscription can be requested via the website:
www.dti.gov.uk/energy/energyprices/prices.htm

This document is based on material drafted for Action Energy – formerly the Energy Efficiency Best Practice programme – under contract to BRE's Sustainable Energy Centre.

Action Energy – formerly the Energy Efficiency Best Practice programme – provides impartial, authoritative information on energy efficiency techniques and technologies in industry and buildings. This information is disseminated through publications, videos and software, together with seminars, workshops and other events. Publications within the programme are shown opposite.

Visit the website at **www.actionenergy.org.uk**

Call the Action Energy Helpline on **0800 585794**

Energy Consumption Guides: compare energy use in specific processes, operations, plant and building types.

Good Practice: promotes proven energy-efficient techniques through Guides and Case Studies.

New Practice: monitors first commercial applications of new energy efficiency measures.

Future Practice: reports on joint R&D ventures into new energy efficiency measures.

General Information: describes concepts and approaches yet to be fully established as good practice.

Fuel Efficiency Booklets: give detailed information on specific technologies and techniques.

Introduction to Energy Efficiency: helps new energy managers understand the use and costs of heating, lighting, etc.